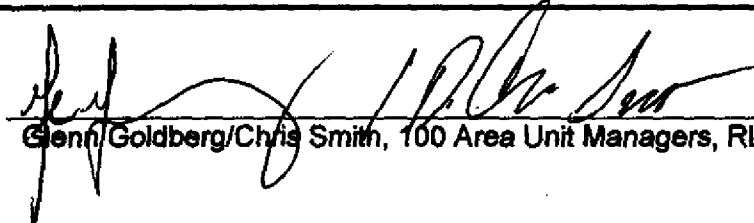
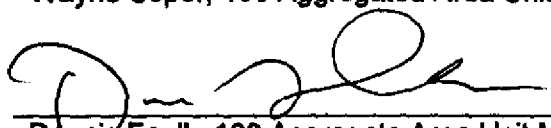



Meeting Minutes Transmittal/Approval  
Unit Managers' Meeting  
Remedial Action and Waste Disposal Unit/Source Operable Unit  
3350 George Washington Way, Richland, Washington  
July 1999

0052961

APPROVAL:  Date 1/19/00  
Glenn Goldberg/Chris Smith, 100 Area Unit Managers, RL (H0-12)

APPROVAL: NA Date \_\_\_\_\_  
Wayne Soper, 100 Aggregated Area Unit Manager, Ecology (B5-18)

APPROVAL:  Date 3-28-00  
Dennis Faulk, 100 Aggregate Area Unit Manager, EPA (B5-01)

APPROVAL:  Date 1-27-00  
Rick Bond, 100-N Area Unit Manager, Ecology (H0-18)

RECEIVED  
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Meeting minutes are attached. Minutes are comprised of the following:

Attachment 1	-	Agenda
Attachment 2	-	Attendance Record
Attachment 3	-	100 Area UMM Minutes - July 1999
Attachment 4	-	116-C-1 Revegetation
Attachment 5	-	116-C-1 Drilling Scenario Chart
Attachment 6	-	116-B-14 Remediation Plans
Attachment 7	-	116-D-5 Waste Flow Diagrams

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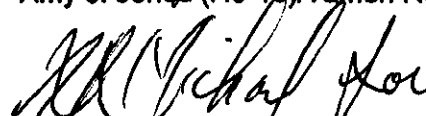
Prepared by:

  
Amy J. Jones (H0-10)/Tamen Rodriguez

Date

3/28/00

Concurrence by:

  
Vern Dronen, BHI Remedial Action and Waste Disposal Project Manager  
(H0-17)

Date

3/28/00

# UNIT MANAGERS' MEETING AGENDA

3350 George Washington Way, Room 1B45

July 22, 1999

**1:00 – 4:00 p.m. 100 Area 1B45**

## 100 Area Remedial Action

- Preliminary Summary Results of Revegetation on 116-C1 – Steve Weiss (15 minutes)
- Remaining Sites ROD (is it signed)
- N RODs Status
- Burial Ground FFS Status
- SAP/DQO for Burial Ground
- Well Drilling Scenario (D&D and RA Site Closeout Exposure Scenarios)
- Status of 180-F Masonry Block Debris as RA Action Fill and Associated Closeout Documentation
- Updated Status of Cr6+ Kd/Leachability Testing (samples from 116-D7)
- Status of 116-C2 A, B, C Site Closeout Testing for Cr6+
- Outfalls Remediation (continued discussions)
- Site Closeout Verification Packages (status of individual packages upcoming, general and other items)
- 126-F1 Ash Pit, Contaminant of Concerns Listing for Leaving Ash in Place, Status of Upcoming Field Work
- Dust Suppression Water

Remedial Action and Waste Disposal Unit Manager's Meeting  
Official Attendance Record  
July 22, 1999

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
Frank Corvuz	BHI	Proj. Engr.	373-1661
Rick Bond	Ecology	100 Areas	736-3037
Dick Jagurish	DOH		228-2804
Jim Fomher	ERC	Clubs	370-9611
Darc Tecl	BHI		372-9633
Larry Gadbois	EPA		376-9881
Chris Kemp	BHI	Revog./ Surv. + Man.	373-6926
Craig Cameron	EPA		376-8665
Chris Smith	DOE	Proj. manager	372-1544
Dennis Paulk	EPA	RPM	376-8631
Ella Coenenberg	ERC/CNT		372-9303
John April	BHI	Task Lead	2-9632
FRED ROECK	BHI	Environ lead	2-9016
Alvin Langstaff	ERC	Task Lead	3-5876
Glenn Goldberg	DOE	Proj. Manager	6-9552
Steve Wiers	CNT	Revog.	2-7531
Mark Sturges	ERC	Res Engr	3-5519
David Holland	Ecology	H-Area lead	736-3027

**MEETING MINUTES  
REMEDIAL ACTION AND WASTE DISPOSAL  
UNIT MANAGERS' MEETING -- 100 AREA  
July 22, 1999**

**Attendees:** See Attachment #2

**Agenda:** See Attachment #1

**Topics of Discussion:**

***100 Area Remedial Action***

1. Preliminary Summary Results of Revegetation on 116-C-1 - Steve Weiss (15 minutes) - First large-scale revegetation of a remediation site with native species. (Attachment 4). Dennis Faulk, EPA, asked if any criteria have been set to determine if the revegetation is successful? Steve Weiss, said that criteria are listed in the original revegetation plan. The success will be judged after five years, looking at species present and cover, comparing to sites with similar topsoil. Dennis Faulk wants to ensure revegetation is built into the Remediation Design documents. Integration with the tribes was discussed; the tribes and stakeholders (Natural Resources Trustee Council) were involved in this revegetation plan and reviewed it, providing comments that were incorporated. The Trustees (including the tribes) will also be given a status report for this revegetation project. In addition, ERC is working with the tribes in determining additional, appropriate species to plant.
2. Remaining Sites ROD Status - EPA stated that the ROD was signed by the Tri-Parties and is currently being distributed.
3. N RODs Status - Glenn Goldberg, RL, stated that the ERC is revising the responsiveness summary for the two N Area RODs following the Remaining Sites format. Glenn Goldberg requested that the electronic copy of the previous responsiveness summary be sent from Ecology to Rick Donahoe and Ella Coenenberg. Dennis Faulk, EPA, asked when the revised N RODS would be available for final review. He stated that the remedy section of the RODS will be the only portion forwarded to EPA legal for their final review and, EPA has an internal date of September 30, 1999 to finalize the RODS. Rick Bond, Ecology, stated that the NR-1 and NR-2 ROD should be available for review by early August. ERC commented that the NR-1 (TSD) ROD will be available for RL and regulator review by July 30, 1999.
4. Burial Ground FFS Status - Glenn Goldberg announced that a meeting has been scheduled for July 28, 1999 with EPA for general discussion of this document and EPA's comments. No specific responses to comments will be discussed, the meeting will focus on the global issues and present RL's position on their preferred path forward. A briefing to Keith Klein, Manager of Richland Operations, will occur prior to the meeting. EPA stated the meeting should not take place if RL is not ready to discuss the comments.

5. SAP/DQO for Burial Grounds - ERC questioned whether a separate SAP and DQO would be needed for the Burial Grounds or if revising the 100 Area SAP would be adequate. The question was asked because of the detail work planning that is in progress for the burial grounds remedial action design. EPA stated that a separate SAP/DQO would be probable, but emphasized that until the FFS is resolved, a SAP should not be considered.
6. Well Drilling Scenario (D&D and RA Site Closeout Exposure Scenarios) - D&D is working on a release document and need to add a drilling scenario to this document. RESRAD soil did not look the same as the RESRAD soil that EPA used. Need to come to agreement on scenario for well drilling. A handout containing Al Robinson's data was provided (Attachment 5). Simplest decision is to take it out of the D&D document. EPA, RL and WDOH concur with this decision and Ecology will look into the details before making a final decision on the issue.
7. Status of 108-F Masonry Block Debris as RA Action Fill and Associated Closeout Documentation - Worked with D&D to backfill B-14 with rubblized cinder block. Backfill material will be put on the BHI as-built drawings and the drawing as well as information pertaining to it was put into the CVP for B14. Annotation will be put into WIDs for this activity. A copy of drawing, Figure 2. 116-B-14 pre-and post-remediation topographic plans was provided (Attachment 6).
8. Updated Status of Cr6+ Kd/Leachability Testing (samples from 116-D-7) - Still in the process of the leach rate, no determination at this time, too preliminary at this time.
9. Status of 116-C-2 A, B, C Site Closeout Testing for Cr6+ - Still looking at this data and is still open. No status on this at this time.
10. Outfalls Remediation (continued discussions) - Glenn Goldberg had a conversation with Rich Holten to have this work completed. D and H Area are opportunities for this work. There is some planning that needs to occur before this remediation can be completed. Dennis Faulk, EPA would like this to be brought up at the DWP discussion in adding this work for design and remediation. ERC would like the regulators to think about the 30" irrigation scenario rule at the river, does it apply to this work, and EPA said it probably doesn't apply but how do we document this? WDOH said it doesn't sound like this rule applies, but who makes the decision and how does it get documented? There is a potential for Cr6 soil contamination to affect the river. EPA does not see a lot of excavation around there, Dennis will discuss with Doug Sherwood. This will be discussed further at the next UMM. (Attachment 7)
11. Site Closeout Verification Packages (status of individual packages upcoming, general and other items) - B13 and B14 are completed and signed. C5 and B11 and 1607-D2 are the next CVPs out, should be out for review within the next two weeks. B1 and DR9 will be after that.
12. 126-F1 Ash Pit, Contaminant of Concerns Listing for Leaving Ash in Place, Status of Upcoming Field Work - Bergstrom and Mitchell wanted to explore the use of the geoprobe to see if this would be a viable tool for field screening. Ash pit remediation is starting next year. RL Submitted a proposal to waste minimization program to get some equipment to fit the geoprobe to do this kind of work and test on some known sites and get calibrated. Then test it at the Ash Pit. Technology, waste minimization, cost effective, etc. This work has been funded. The test plan should be completed by the

end of August. EPA would like to review the test plan. Unless you are using it to eliminate COCs would like to look at the test plan.

13. Dust Suppression Water - Dennis Faulk, EPA, our levels of contaminants in the B/C Area have gone way up, it is conjectured that water used for dust suppression is driving those contaminants into the groundwater. Hopefully, they will trend down. Groundwater folks and RA folks need to discuss when samples are taken, to be able to better assess if the dust suppression water may be contributing to the levels going up. Some integration between these two groups should take place.



# **116-C-1**

# **Revegetation**

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# **Purpose**

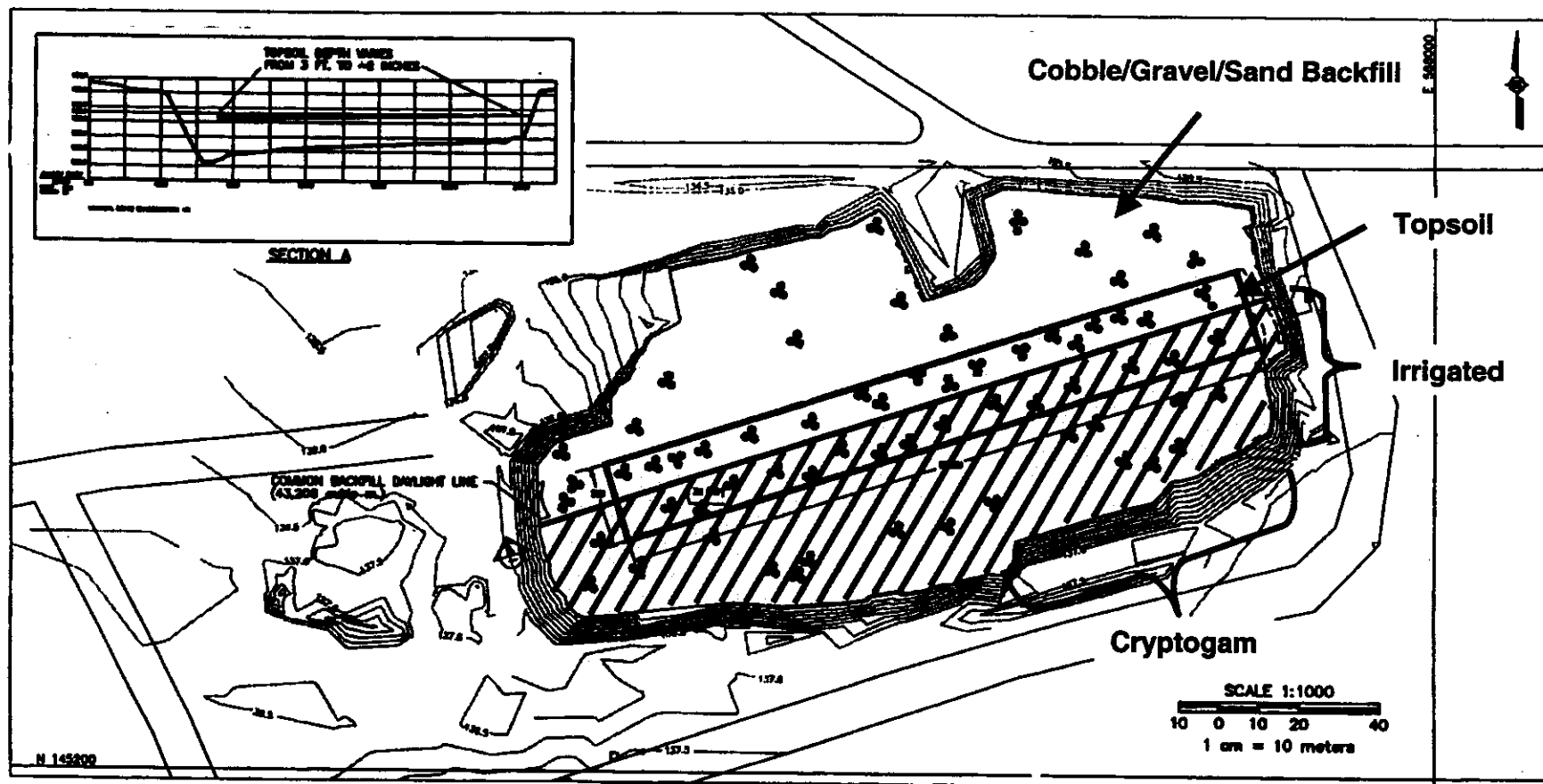
- **Evaluate practical ways of revegetating remediated sites to native plant species**
  - **Varied topsoil and water treatments**
  - **Used only seeds of native species**
  - **First large-scale seeding with native species on a remedial action site**



## **Topsoil**

- **Response to request by stakeholders**
- **Used top 6 - 12 inches grubbed from ERDF in 1995**
- **Depth at 116-C-1 varies from 3 feet at west end to 3 inches at east end**
- **Surrounding material is cobble/gravel/sand backfill from borrow pit west of B Area**

# 116-C-1 Revegetation





## **Seeds**

- **ERC has a seed growing subcontract with the CTUIR Nursery and L&H Seeds**
- **The RAWD project and Natural Resources Group have ensured that the ERC is only using native, locally-derived seed in its revegetation**
- **Sandberg's bluegrass**
- **Needle & thread grass**
- **Indian ricegrass**
- **Sagebrush**
- **Snow buckwheat**
- **Carey's balsamroot**
- **Yarrow**

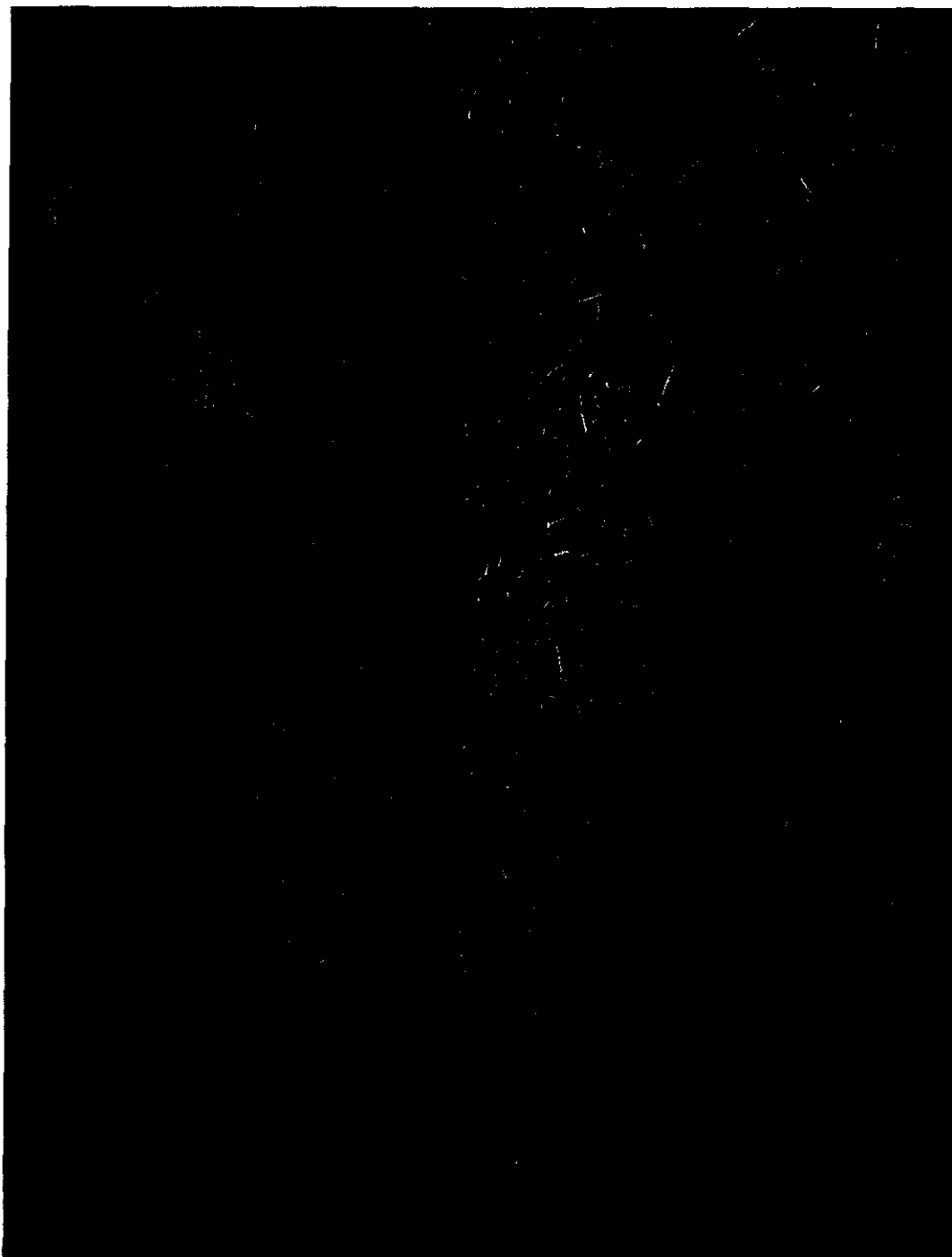
## **Other**

- **Cryptogams: 20 lb. Cryptogam/soil dust hand-cast over east half of site**
- **Sagebrush: 201 tubelings hand-planted in both topsoil and backfill (1/2 and 1/2). Planted in groups of 3 and groups flagged. Holes watered to avoid cavities in soil.**

116-C-1  
Revegetation



116-C-1  
Revegetation



E9807025.10

116-C-1  
*Revegetation*



E9907025.16



**116-C-1**  
**Revegetation**



E9907025.18

**116-C-1  
Revegetation**

Species	Irrigated Topsoil	Non-Irrigated Topsoil	Irrigated Cobble	Non-Irrigated Cobble
<i>Sandberg's Bluegrass</i>	x	x	x	x
<i>Needle and Thread Grass</i>	x	x	x	x
<i>Indian Ricegrass</i>	x	x		
<i>Sagebrush (seedlings)</i>	x	x		
<i>Snow Buckwheat</i>	x	x	x	x
<i>Carey's Balsamroot</i>			x	
<i>Yarrow</i>		x	x	
<i>Rabbitbrush</i>	x	x	x	x
<i>Salsfy</i>	x	x		x
<i>Storksbill</i>				x
<i>Tall Willowherb</i>	x		x	x
<i>Jagged Chickweed</i>		x		x
<i>Primrose</i>		x		
<i>Wheat</i>	x	x	x	x
<i>Cheatgrass</i>	x	x	x	x
<i>Russian Thistle</i>	x	x	x	x
<i>Tumblemustard spp.</i>	x	x	x	x
<i>Bur Ragweed</i>	x	x		x
<i>Tarweed Fiddleneck</i>	x	x		
<i>Other</i>	3	3	1	2
<b>Total</b>	<b>16</b>	<b>19</b>	<b>12</b>	<b>15</b>
<b>Sagebrush Survival (Live/Dead)</b>	<b>45/12</b>	<b>35/7</b>	<b>33/3</b>	<b>66/0</b>

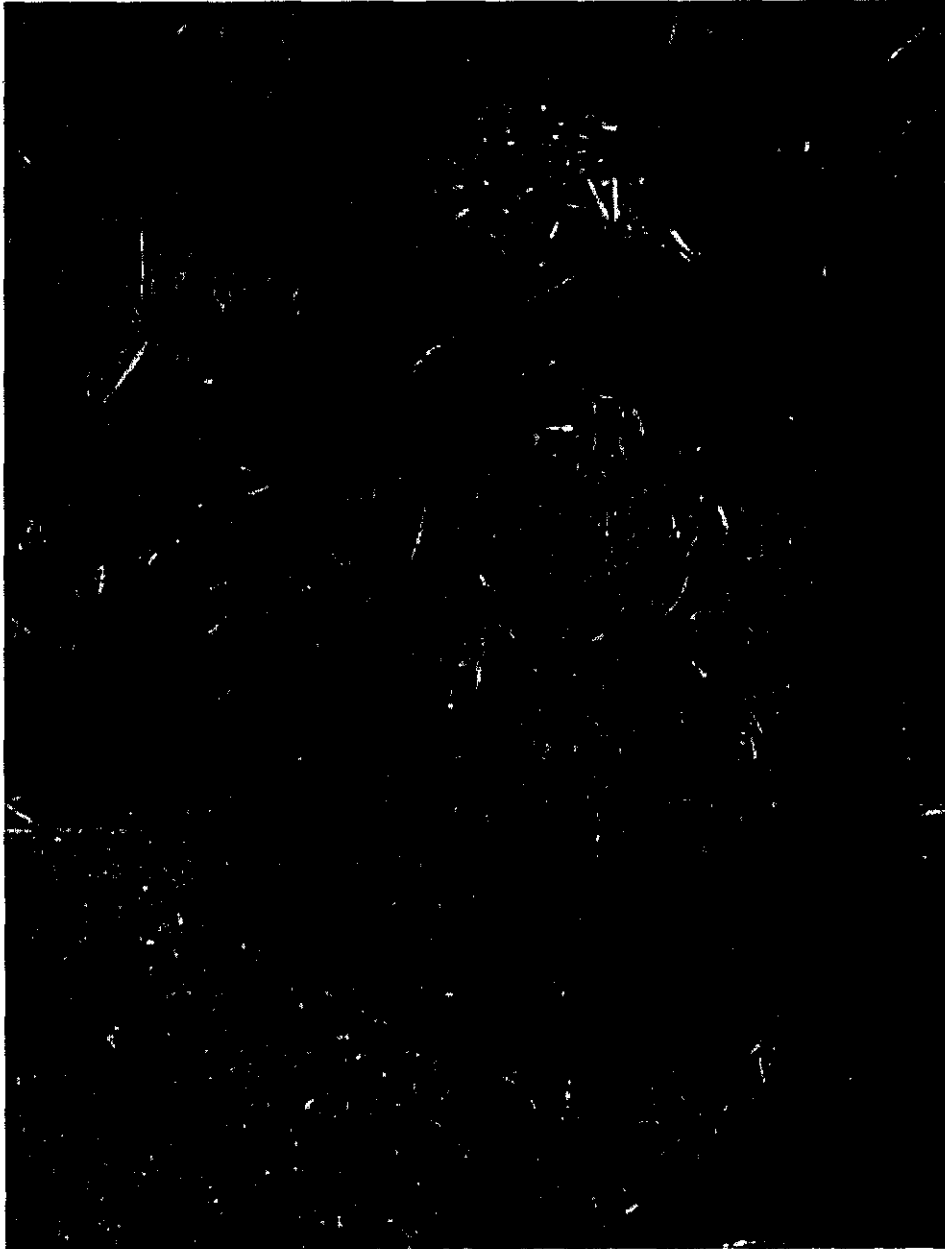
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## **Evaluation Considerations**

- **Less than normal rain for March and April 1999**
- **First few years of results are not strong indicators of long-term results**
- **Non-topsoil sites show less dense growth, but good variety of natives are establishing**
- **Tubeling sagebrush success is high. Most mortality from deer pulling up the plants.**

116-C-1  
Revegetation



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116-C-1  
*Revegetation*



E9907025.16

116-C-1  
Revegetation

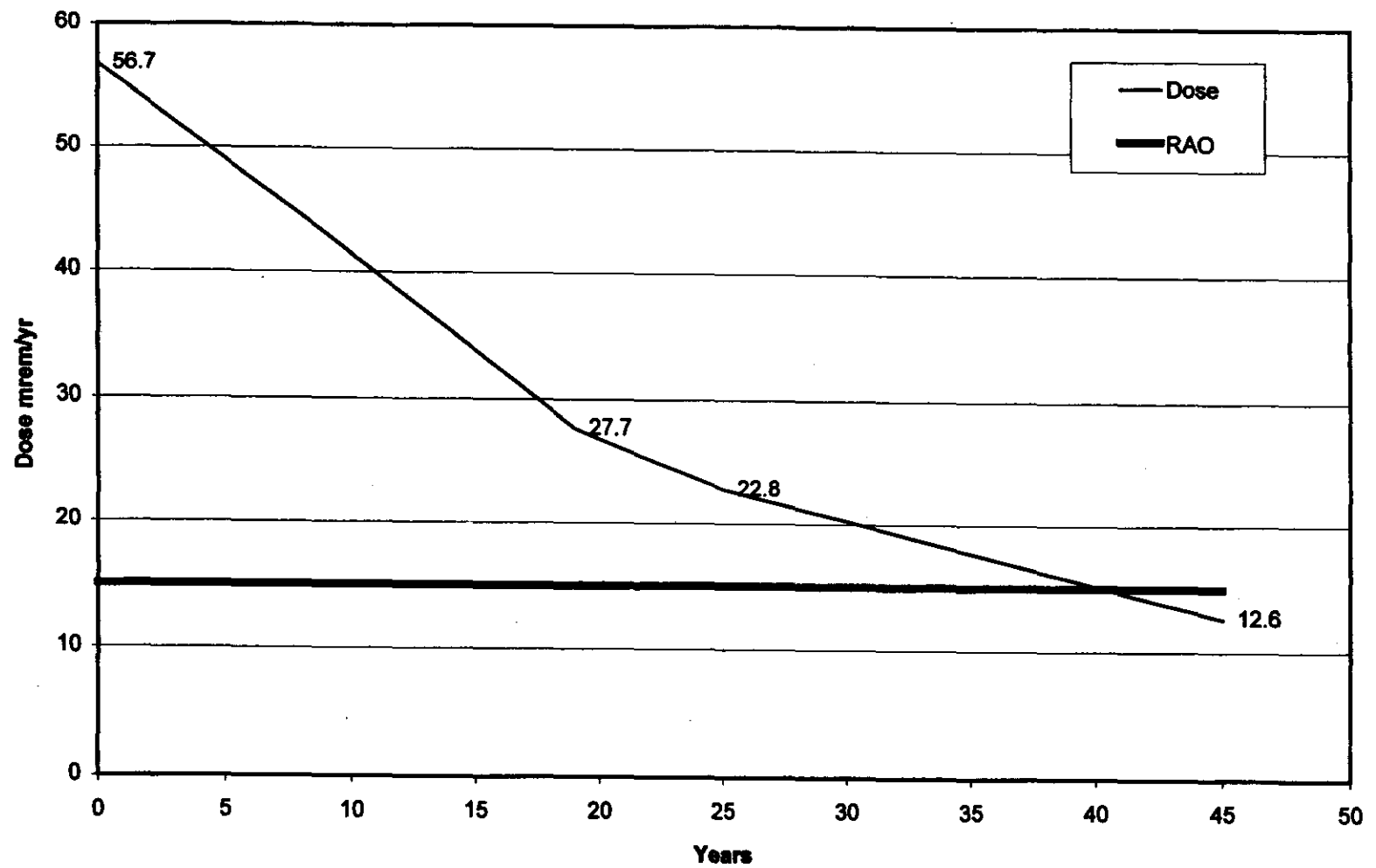


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# Summary

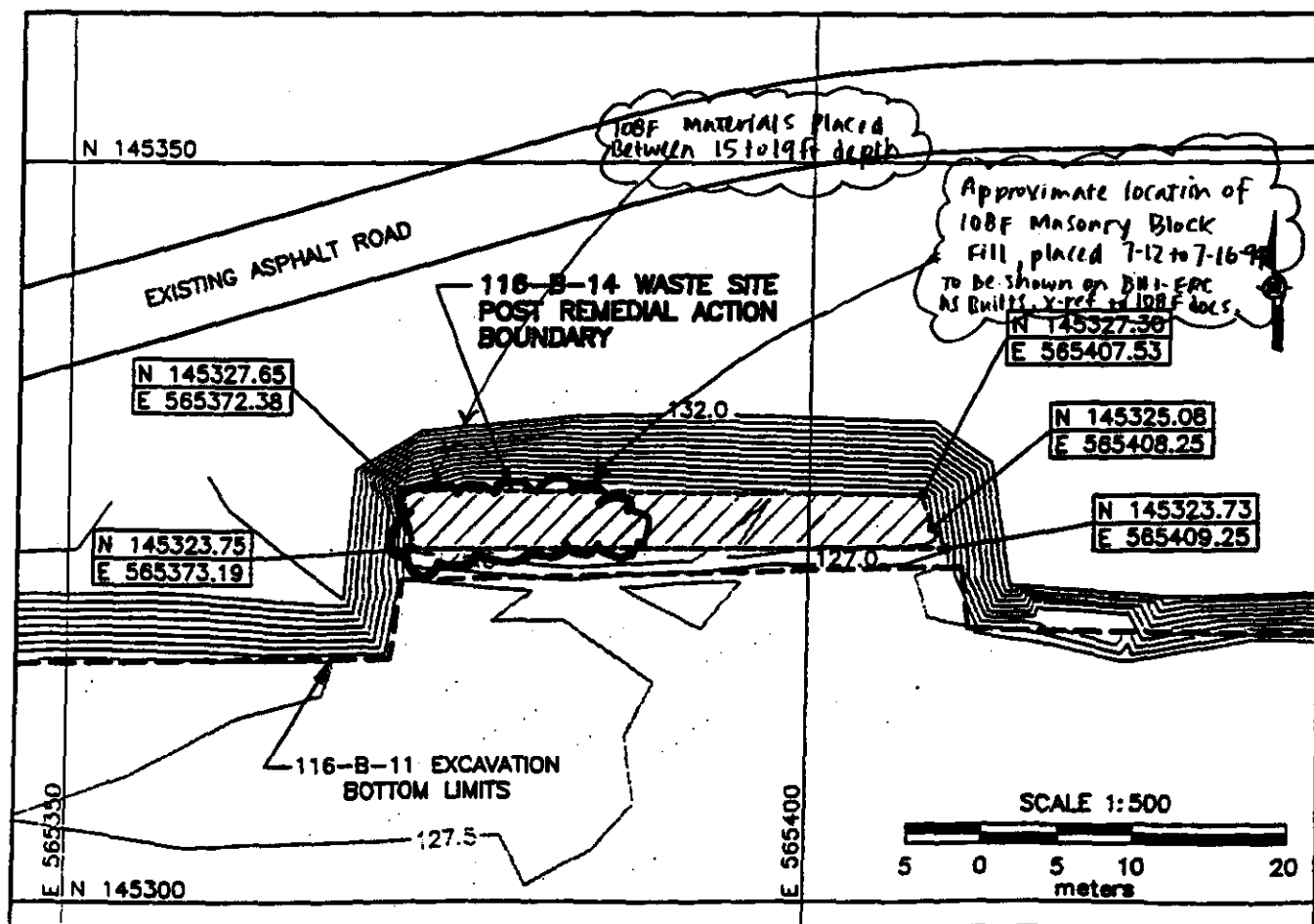
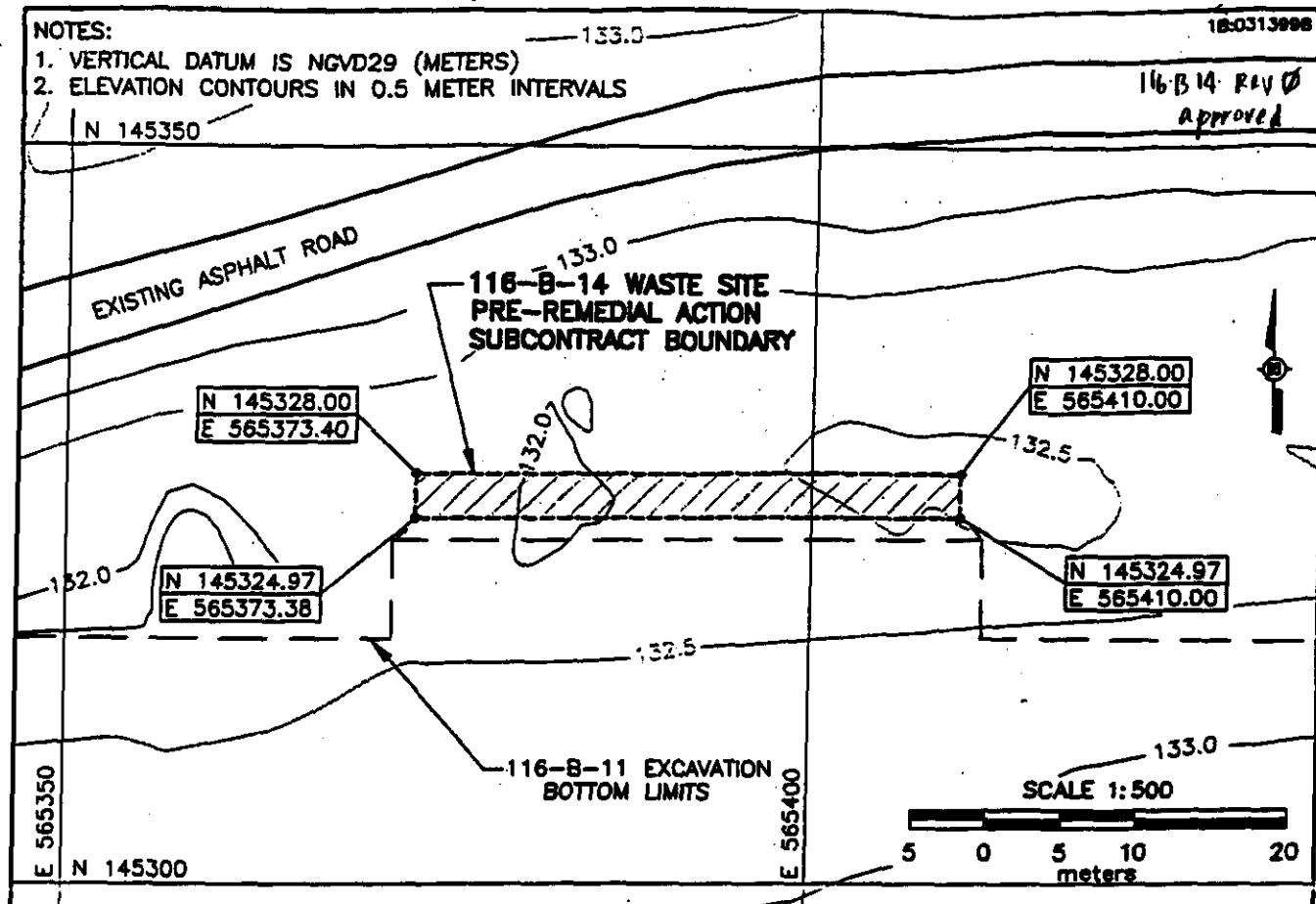
- **ERC is doing cost-effective revegetation**
  - **~\$3,000/acre, an order of magnitude less than similar projects before ERC**
- **Excellent support from the RAWD project**
- **Upcoming remediated liquid waste sites will be done with:**
  - **Native seeds, hand-planted sagebrush**
  - **Backfill material, limited irrigation**
- **Schedule for liquid waste site revegetation**
  - **B/C Area: FY00**
  - **H Area: FY01**
  - **D/DR & F Areas: FY02**

**Drilling Scenario  
116-C-1**





**Figure 2. 116-B-14 Pre- and Post-Remediation Topographic Plans.**



## 2.3 CONTAMINANTS OF CONCERN

From process knowledge, the waste site contaminants of concern (COCs) identified in the SAP include the following (DOE-RL 1998a):

- Americium-241
- Cobalt-60
- Cesium-137
- Europium-152
- Europium-154
- Europium-155
- Plutonium-238
- Plutonium-239/240
- Strontium-90
- Uranium-238
- Total chromium
- Hexavalent chromium ( $\text{Cr}^{+6}$ )
- Mercury
- Lead.

## 2.4 REMEDIAL ACTION DESCRIPTION

Excavation of the 116-B-14 site began on May 27, 1998, by removing the overburden materials and underlying contaminated soil. Overburden materials, which were contaminated, were disposed of at the ERDF. On September 17, 1998, the excavation had reached the design limits below the base of the engineered structure (El. 126.5 m [415 ft]) and cleanup verification sampling was initiated.

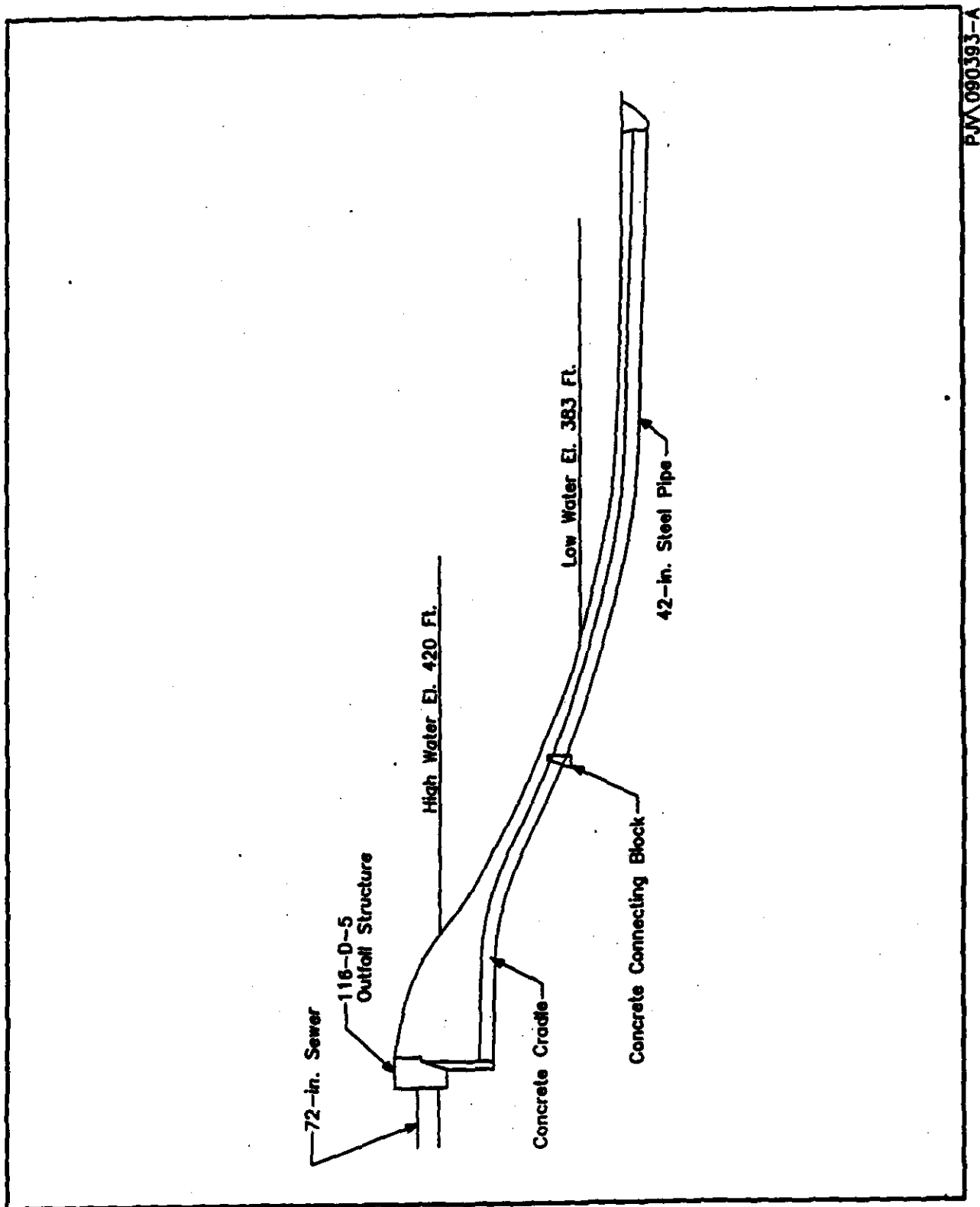
Waste materials that were excavated, loaded into shipping containers, and disposed of at the ERDF consisted of soils not meeting direct exposure RAGs based on field screening results.

At the completion of the remedial action, the excavation area floor was approximately  $132 \text{ m}^2$  ( $1,422 \text{ ft}^2$ ) at a depth of 6 m (19.7 ft), and approximately 3,795 metric tons (4,183 tons) of material from the site were disposed of at the ERDF. The excavation will be backfilled in the near future with clean fill materials to the reference grade of El. 132.5 m (435 ft). Clean backfill may be taken from the clean overburden pile and other sources of clean material located near the 116-B-14 site that have been surveyed in accordance with the SAP (DOE-RL 1998a) and that are appropriate for use as backfill.

no changes  
to existing Rev 0  
proposed

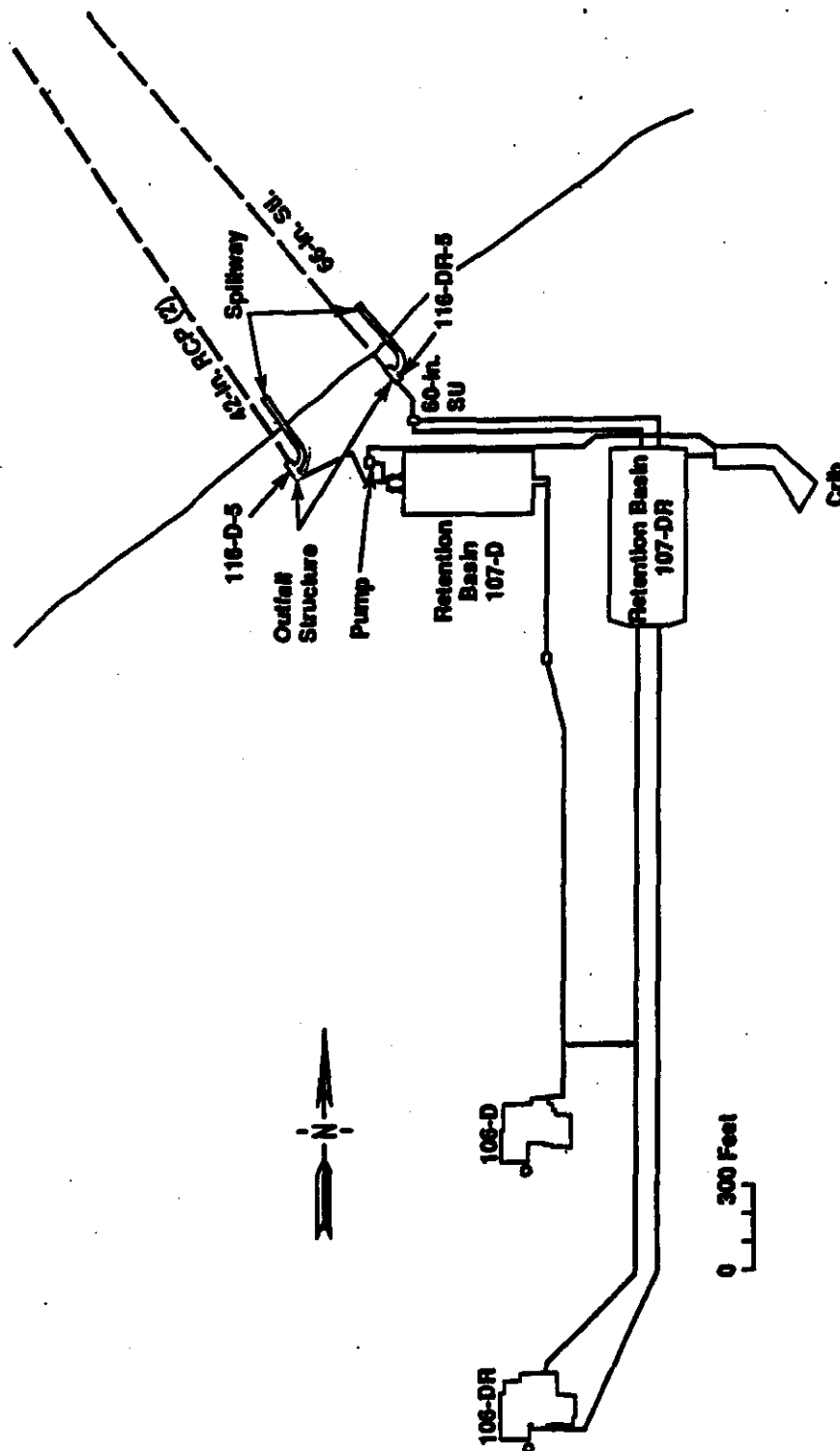
DOE/RL-94-79, Draft A

Figure 5. Profile 116-D-5 Outfall to River. .



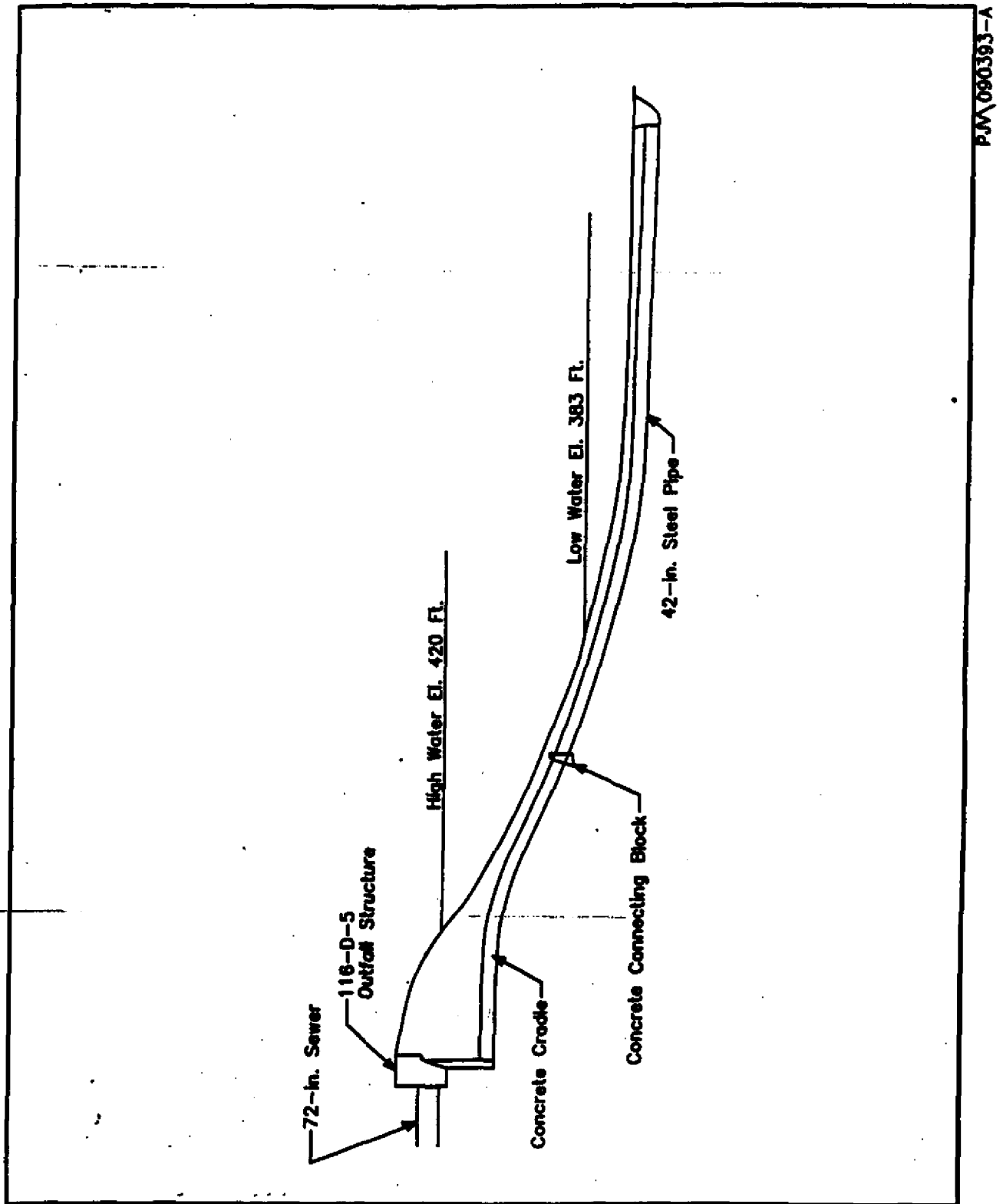
DOE/RL-94-79, Draft A

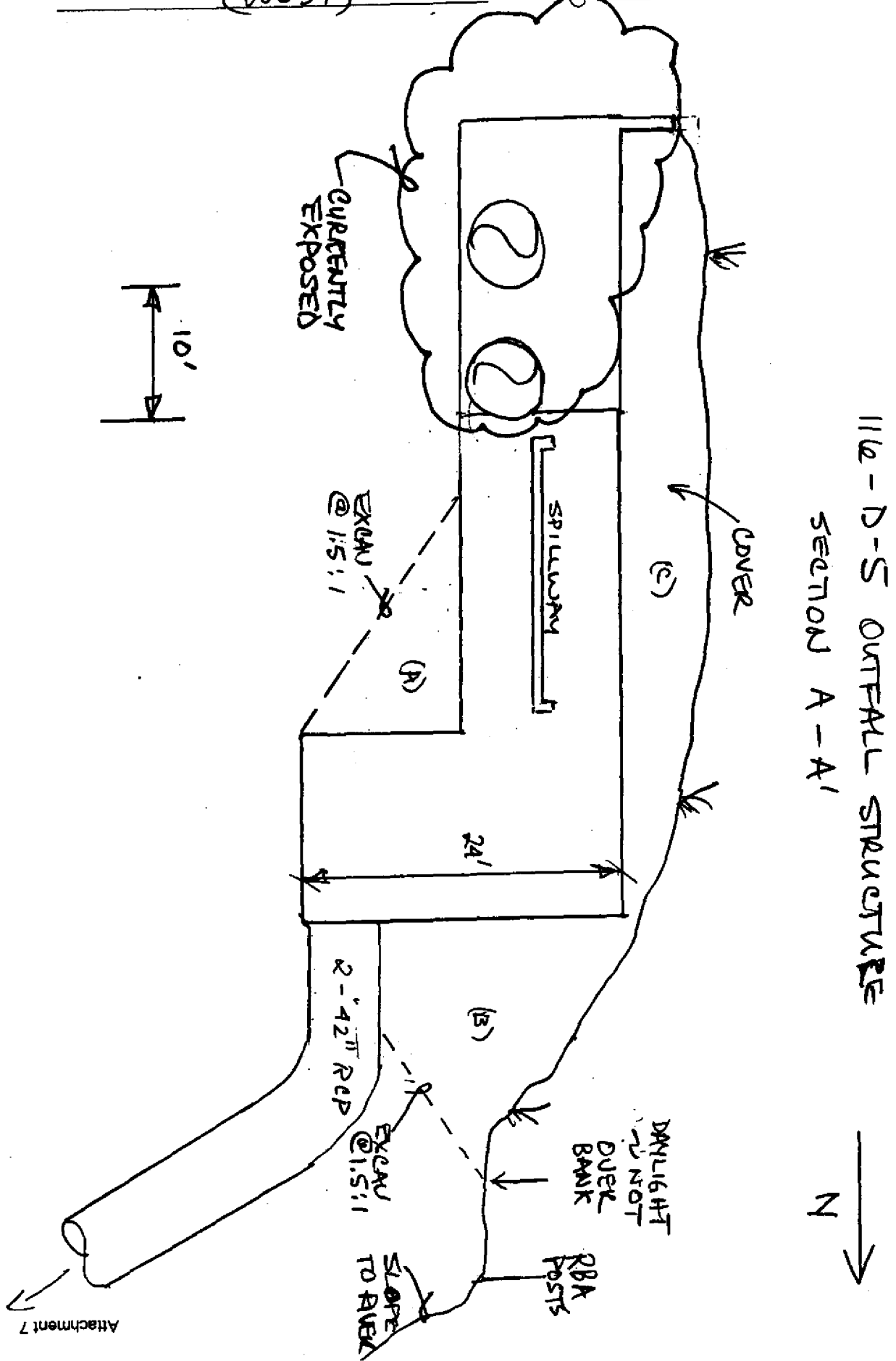
**Figure 4. Effluent System, D and DR Reactors.**



DOE/RL-94-79, Draft A

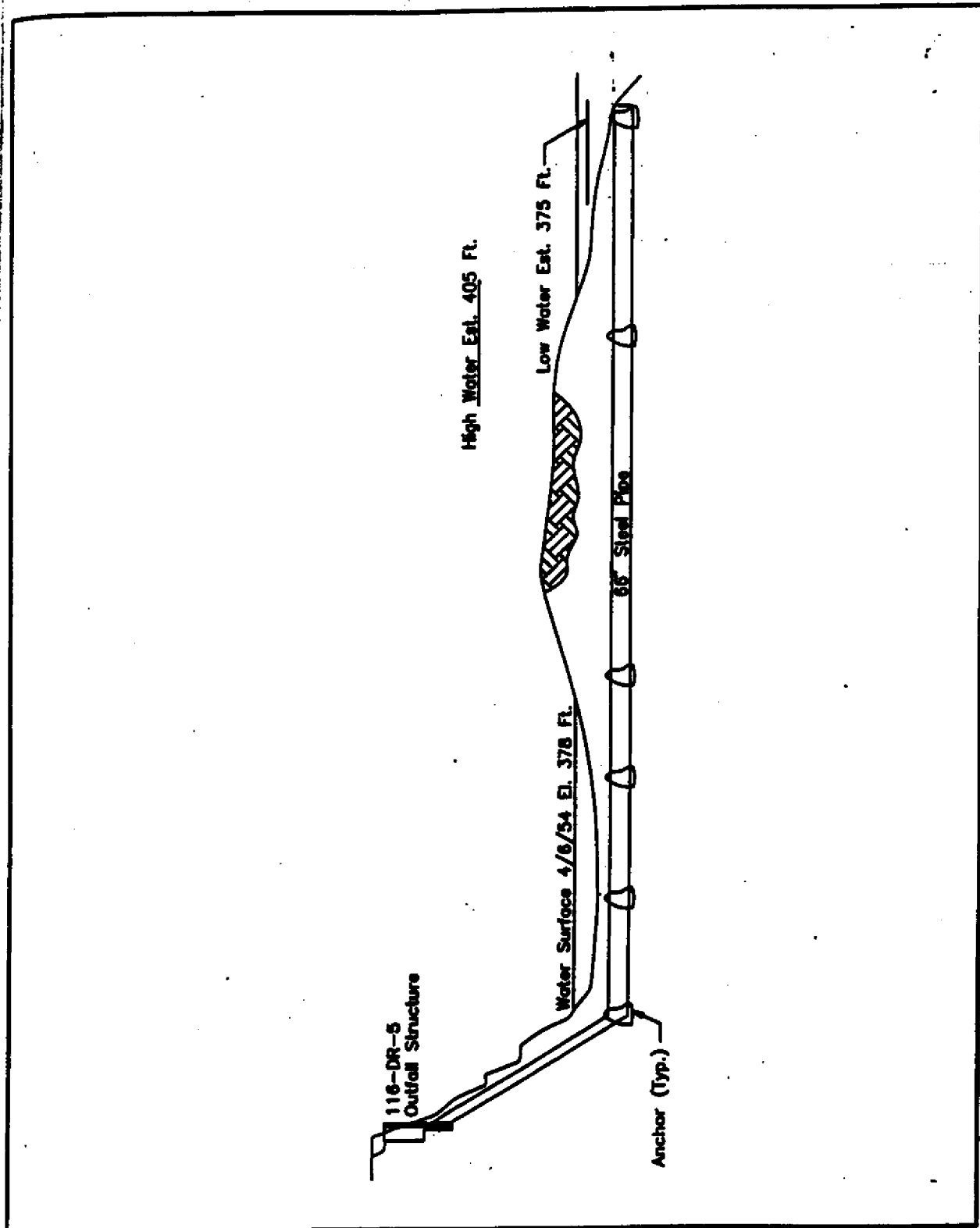
Figure 5. Profile 116-D-5 Outfall to River.





DOE/RL-94-79, Draft A

Figure 6. Profile 107-DR Outfall to River.



PJA 000393-E

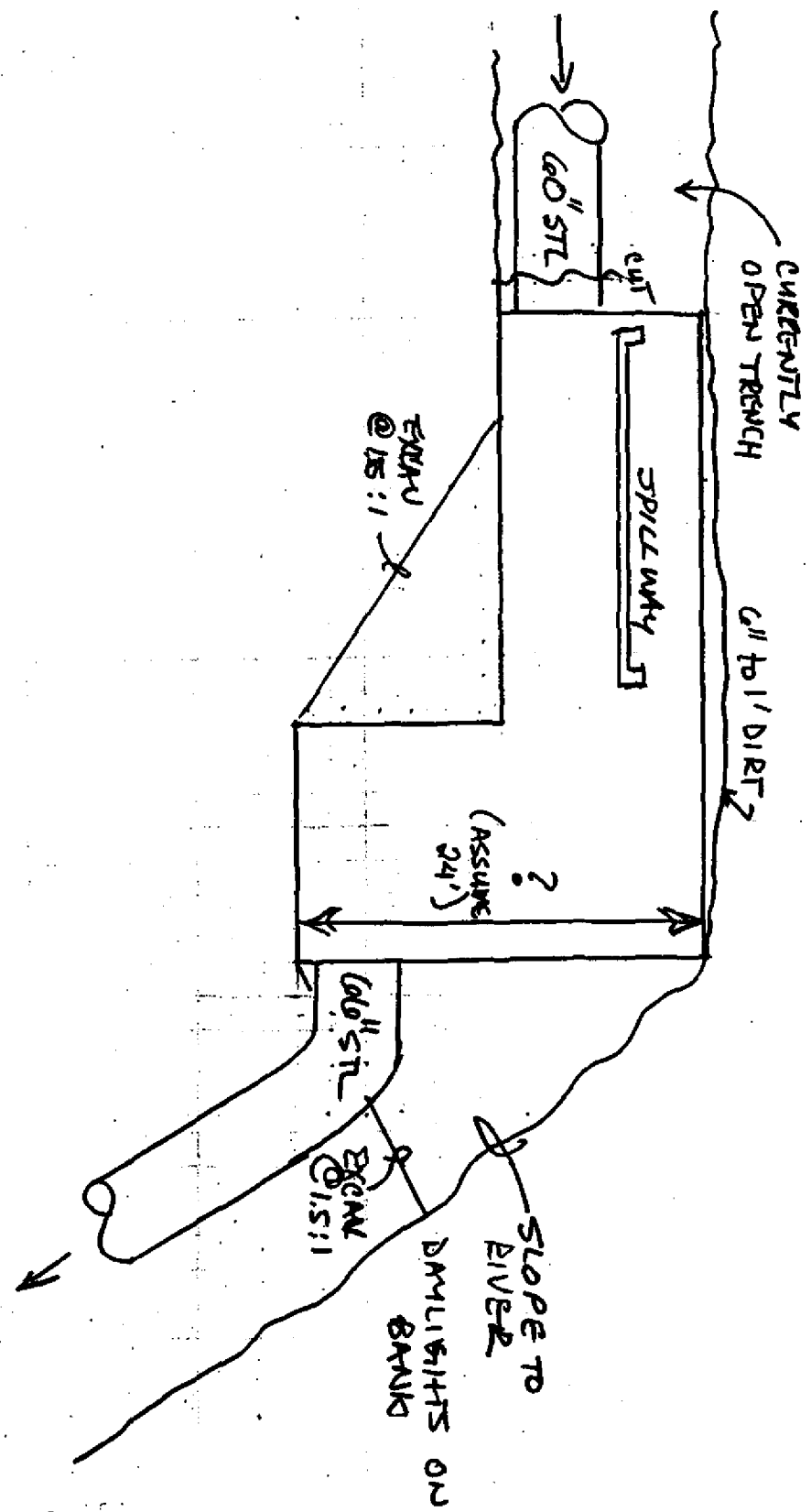
H2MHILL

SUBJECT 116-DR-S OUTFALL  
STRUCTURE (EAST)

BY \_\_\_\_\_

SHEET NO. \_\_\_\_\_ of \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NO. \_\_\_\_\_



116-DR-S OUTFALL STRUCTURE





**Distribution**  
**Unit Mangers' Meeting: Remedial Action Unit/Source Operable Units**  
**100 Areas**

077996

Glenn Goldberg ..... DOE-RL, RP (H0-12)  
Owen Robertson ..... DOE-RL, RP (H0-12)  
Chris Smith ..... DOE-RL, RP (H0-12)

Lisa Treichel ..... DOE-HQ (EM-442)

Wayne Soper ..... WDOE (Kennewick) (B5-18)  
Rick Bond ..... WDOE (Kennewick) (B5-18)

Lynn Albin ..... Washington Dept. of Health  
Richard Jauish ..... Washington Dept. of Health

John April ..... BHI (H0-17)  
Dave Blumenkranz ..... CHI (H9-02)  
Ella Coenenburg ..... BHI (H9-03)  
Frank Corpuz ..... BHI (X9-06)  
Rick Donahoe ..... BHI (H0-17)  
Jon Fancher ..... CHI (H9-02)  
Dennis Falk ..... (B5-01)  
Alvina Goforth ..... BHI (H0-09)  
Chris Kemp ..... BHI (S3-20)  
Tom Kisenwether ..... BHI (X9-10)  
Alvin Langstaff ..... BHI (X3-40)  
Tamen Rodriguez ..... BHI (H0-17)  
Fred Roeck ..... BHI (H0-17)  
Mark Sturges ..... CHI (X3-40)  
Joan Woolard ..... BHI (H0-02)

Amy Jones ..... (H0-10)

Please inform Tamen Rodriguez (372-9562) – BHI  
Of deletions or additions to the distribution list.